



# UNITED STATES PATENT AND TRADEMARK OFFICE

*adn*  
UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/787,164	02/27/2004	Takanori Teshima	01-279-CON	4896

23400 7590 06/14/2004

POSZ & BETHARDS, PLC  
11250 ROGER BACON DRIVE  
SUITE 10  
RESTON, VA 20190

EXAMINER

WILLIAMS, ALEXANDER O

ART UNIT PAPER NUMBER

2826

DATE MAILED: 06/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/787,164

Applicant(s)

TESHIMA, TAKANORI

Examiner

Alexander O Williams

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 7-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 7-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☒ Certified copies of the priority documents have been received in Application No. 10/127,613.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2/27/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

Art Unit: 2826

Serial Number: 10/127613 Attorney's Docket #: 01-279

Filing Date: 4/23/02; claimed foreign priority to 4/25/2001

Applicant: Teshima

Examiner: Alexander Williams

This is a continuation of serial # 10/1276132, filed 4/23/02.

Applicant's Pre-Amendment filed 2/27/04 has been acknowledged.

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 10/127613, filed on 4/23/02.

Claims 4 to 6 and 10 to 16 have been canceled.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Initially, it is noted that the 35 U.S.C. § 103 rejection based on insulating sheets and resin molding deals with an issue (i.e., the integration of multiple pieces into one piece or conversely, using multiple pieces in replacing a single piece) that has been previously decided by the courts.

Art Unit: 2826

In Howard v. Detroit Stove Works 150 U.S. 164 (1893), the Court held, "it involves no invention to cast in one piece an article which has formerly been cast in two pieces and put together...."

In In re Larson 144 USPQ 347 (CCPA 1965), the term "integral" did not define over a multi-piece structure secured as a single unit. More importantly, the court went further and stated, "we are inclined to agree with the solicitor that the use of a one-piece construction instead of the [multi-piece] structure disclosed in Tuttle et al. would be merely a matter of obvious engineering choice" (bracketed material added). The court cited In re Fridolph for support.

In re Fridolph 135 USPQ 319 (CCPA 1962) deals with submitted affidavits relating to this issue. The underlying issue in In re Fridolph was related to the end result of making a multi-piece structure into a one-piece structure. Generally, favorable patentable weight was accorded if the one-piece structure yielded results not expected from the modification of the two-piece structure into a single piece structure.

Claims 1 to 3, 7 and 9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Inoue (U.S. Patent # 6,542,365).

For example, in claim 1, Inoue (figures 1, 38 and 39) figure 1 show a semiconductor device comprising: a semiconductor chip **101a,101b**, which produces heat when operated; a heat conducting plate **103** for conducting heat provided on one side of the semiconductor chip; an insulating sheet **8** and **alternative coating (see 6, lines 5-11)**, which is compressive is deformable also provided on the one side of the semiconductor chip; and a resin molding **19** covering the semiconductor chip, the plate, and the sheet such that the sheet is exposed from the resin molding.

2. The semiconductor device of claim 1, Inoue show wherein the heat conductivity of the insulating sheet is greater than that if the resin molding **(inherit, since the same materials are used)**.

Art Unit: 2826

3. The semiconductor device of claim 2, Inoue show wherein the insulating sheet is made of silicone rubber **(see column 6, lines 5-11)**.

7. The semiconductor device of claim 1, Inoue show wherein the insulating sheet 8 is adhered to the heat conducting plate **103** using a coating resin **19** applied to heat conducting plate **(see in figure 1 where 8 is on 103 which overlaps 103 onto 19)**.

9. The semiconductor device of claim 1, Inoue show wherein the semiconductor chip forms part of a stack, and the stack includes the plate, and opposite sides of the semiconductor chip are soldered **(by 104)** to members of the stack.

Therefore, it would have been obvious to one of ordinary skill in the art to use the insulating sheets and the resin molding as "merely a matter of obvious engineering choice" as set forth in the above case law.

Claim 8 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Inoue (U.S. Patent # 6,542,365) in view of .

Inoue show the features of the claimed invention as detailed above, but fail to explicitly show the coating resin is polyamide resin. However, Inoue does discloses a sealing resin. It is understood that one of ordinary skill in the art known that a sealing resin can be a polyamide resin.

Eguchi et al. is cited for showing a semiconductor module. Specifically, Eguchi et al. (figures 1 to 11E) specifically figure 10E discloses **the coating resin is polyamide resin** for the purpose of attaining high density mounting, narrow pitch/multi-pin connection, low noise, and low heat resistance.

Summary of Invention Paragraph - BSTX (33):

[0030] As thermoplastic resins there may be used polyimide or polyamide resins for example.

Detail Description Paragraph - DETX (45):

[0094] Using a mixture (weight ratio 1:1) of a thermoplastic polyimide and a thermoplastic polyamide-imide as the resin composition 5 a semiconductor module

was fabricated in accordance with the method illustrated in FIGS. 10A to 10G.

Art Unit: 2826

Therefore, it would have been obvious to one of ordinary skill in the art to use Eguchi et al.'s polyamide coating resin to modify Inoue's sealing resin for the purpose of attaining high density mounting, narrow pitch/multi-pin connection, low noise, and low heat resistance.

The listed references are cited as of interest to this application, but not applied at this time.

Field of Search	Date
U.S. Class and subclass: 257/718,712,713,675,777,723,685,686,707,720,717,787, 790,788,791,792,795,796,684	6/9/04
Other Documentation: foreign patents and literature in 257/718,712,713,675,777,723,685,686,707,720,717,787, 790,788,791,792,795,796,684	6/9/04
Electronic data base(s): U.S. Patents EAST	6/9/04

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander O Williams whose telephone number is (571) 272 1924. The examiner can normally be reached on M-F 6:30-7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272 1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2826

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AOW  
6/9/04



Primary Examiner  
Alexander O. Williams